

NEW DATA ON THE PALAEARCTIC DIGGER WASPS
(HYMENOPTERA: SPHECIDAE, CRABRONIDAE)

M. V. Mokrousov^{1,*}, K. I. Shorenko²⁾, A. S. Shlyakhtenok³⁾

1) Institute of Biology and Biomedicine at Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod 603950, Russia. *Corresponding author, E-mail: sphecid@inbox.ru

2) Vyazemsky Karadag Scientific Station – Nature Reserve of RAS, Feodosiya 298188, Russia. E-mail: k_shorenko@mail.ru

3) Scientific and Practical Center of the National Academy of Sciences on bioresources, Minsk 220072, Republic of Belarus. E-mail: shlyakhtenok@mail.ru

Summary. An annotated list of ten species of digger wasps from ten genera is given. The lectotype of *Plenoculus murgabensis* (Gussakovskij, 1928) is designated; this species is newly recorded from Kalmykia (Russia) and Uzbekistan. *Hoplammophila armata* (Illiger, 1807), *Larra carbonaria* (F. Smith, 1858), *Prosopigastra fumipennis* Gussakovskij, 1952 and *Pseudoscolia ishkovi* Kazenas, 1994 are newly recorded from Russia and *Isodontia splendidula* (A. Costa, 1858) from Russia (Dagestan) and Cyprus. *Prosopigastra latifrons* Gussakovskij, 1933 is excluded from Russian fauna. The distribution of another five species in Russia is clarified.

Key words: fauna, new records, lectotype designation, Russia, Cyprus, Uzbekistan.

М. В. Мокроусов, К. И. Шоренко, А. С. Шляхтенюк. Новые сведения о палеарктических роющих осах (Hymenoptera: Sphecidae, Crabronidae) // Дальневосточный энтомолог. 2019. N 396. С. 10-16.

Резюме. Приведен аннотированный список 10 видов роющих ос из 10 родов. Обозначен лектотип *Plenoculus murgabensis* (Gussakovskij, 1928); этот вид впервые указывается из Калмыкии (Россия) и Узбекистана. *Hoplammophila armata* (Illiger, 1807), *Larra carbonaria* (F. Smith, 1858), *Prosopigastra fumipennis* Gussakovskij, 1952 и *Pseudoscolia ishkovi* Kazenas, 1994 указаны впервые для России, а *Isodontia splendidula* (A. Costa, 1858) впервые собран в России (Дагестан) и на Кипре. *Prosopigastra latifrons* Gussakovskij, 1933 исключен из фауны России. Уточнено распространение в России еще 5 видов.

INTRODUCTION

In the recent Catalogue of Hymenoptera 68 species of Sphecidae and 613 species of Crabronidae are listed from Russia (Antropov, 2017; Danilov, 2017; Danilov & Mokrousov, 2017; Mokrousov, 2017d; Nemkov, 2017). Current data increase number species of Sphecidae up to 70 and Crabronidae up to 615.

MATERIAL AND METHODS

This paper is based on the vast material collected in 2018 and 2019 in the south (Crimea, Caucasus, Lower Volga) of the European part of Russia, on the collection of the Zoological Institute (St. Petersburg) [ZISP], Zoological Museum of Moscow State University (Moscow) [ZMMU], M.V. Mokrousov personal collection (Nizhny Novgorod) [MMC], Vyazemsky Karadag Scientific Station – Nature Reserve of RAS (Crimea, Feodosiya) [KSS] and additional material collected by V.M. Loktionov and M.Yu. Proshchalykin (Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok) in the Asian part of Russia (2012–2017). Some of this material is already published (Mokrousov, 2017a, 2017b, 2017c; Lelej & Mokrousov, 2017; Mokrousov *et al.*, 2018).

Photographs taken with a digital camera Canon EOS 50D attached to a Carl Zeiss Stemi 508 stereomicroscope and stacked by using the software Helicon Focus. The final illustrations were post-processed using Adobe® Photoshop® software.

The classification of digger wasps, taxonomy of genera and the distribution outside of Russia (except new records) follows W. Pulawski (2019). Latest synonymy of the genera and species see: Antropov, 2017; Danilov, 2017; Danilov & Mokrousov, 2017; Mokrousov, 2017d; Nemkov, 2017. New records are asterisked (*). Abbreviations for the collectors: YuA – Yu.V. Astafurova; KF – K.I. Fadeev; VL – V.M. Loktionov, MM – M.V. Mokrousov, MP – M.Yu. Proshchalykin, KSh – K.I. Shorenko.

LIST OF THE SPECIES

Family Sphecidae

Chalybion turanicum (Gussakovskij, 1935)

Sceliphron turanicum Gussakovskij, 1935: 414, ♀, ♂. Syntypes: Tajikistan: Zevar, Chash; Uzbekistan: Tashkent, Samarkand, Bukhara, Khiva; Karakalpakya; Turkmenistan; Kazakhstan: Alma Ata; Iran: Astrabad [ZISP].

MATERIAL EXAMINED. **Russia:** *Crimea: Karadag, 44.912°N 35.2°E, 20.VI 2019, 1♀ (KSh) [MMC]; 25.VI 2019, 1♀ (KSh) [KSS]. **Uzbekistan:** Kashkadarya Prov.: Kaltakol', 15.VII 1994, 3♀ (Gromenko) [MMC]; Eskigi-Yakkabag, 30.VII 1994, 1♀ (Gromenko) [MMC]; Karshi, 38.888448°N 65.831745°E, 13.V 2015, 2♀ (MM, MP, Samartsev) [MMC]; Kizil-kishlaq, 38.699567°N 66.73515°E, 18.V 2015, 1♀, 2♂ (MM, MP, Samartsev) [MMC]. **Kyrgyzstan:** Bishkek, 10.VI 1999, 2♀, 1♂ (MM, Anufriev) [MMC]; near Kasarman, 41°26'32"N 73°57'07"E, 28–29.VI 1999, 1♀ (MM) [MMC]. **Kazakhstan:** S. Kazakhstan Prov., Karatau Mt., near Aksumbe, 44°30'25"N 67°24'59"E, 07.VI 2015, 1♀, 2♂ (KF) [MMC].

NOTE. This species was known in Russia from Altai Terr., but currently introduced in Crimea.

Hoplammophila armata (Illiger, 1807)

Sphex armatus Illiger, 1807: 91, ♂. Type locality: Italy: Etruria [Toscana].

MATERIAL EXAMINED. ***Russia:** Dagestan: Belidzi (41.867°N 48.402°E), 19.VIII 1924, 1♀ (Rjabov) [ZMMU]; near Talgy, 42.876294°N 47.440111°E, 25.VI 2018, 1♀ (YuA, KF, VL, MM, MP) [MMC]; 4 km SW Korkmaskala, Barkhan Sarykum, 43.002293°N 47.237432°E, 26.VI 2018, 2♀ (KF, MM) [MMC]; near Gelinbatan, 41.940556°N 48.178036°E, 29.VI 2018, 1♂ (KF) [MMC]; Samur Reserve, 41.8667°N 48.5565°E, 04.VII 2018, 3♀, 6♂ (KF, MM) [MMC].

NOTE. This species is newly recorded from Russia. Inhabits the foothill and lowland forests. Nests in rotten wood.



Figs 1–5. *Plenoculus murgabensis* (Guss.) (1–3 – ♀; 4, 5 – ♂). 1, 4 – habitus; 2 – labels of lectotype; 3, 5 – head, frontal view. (1, 2 – lectotype, Turkmenistan; 3 – from Astrakhan Prov.; 4 – from Kalmykia; 5 – from Turkmenistan). Scale bar: 1 mm.

***Isodontia splendidula* (A. Costa, 1858)**

Sphex splendidulus A. Costa, 1858: 7, ♀, ♂. Syntypes: Italy: Marche, Sanseverino [Museo Zoologico, Centro Musei delle Scienze Naturali, Napoli, Italy].

MATERIAL EXAMINED. *Russia: Dagestan: Narat-Tube range, 42.993922 °N 47.230336°E, 24.VI 2018, 1♀ (MM) [MMC]; near Talgy, 42.876294°N 47.440111°E, 25.VI 2018, 2♂ (YuA, KF, VL, MM, MP) [MMC]; Kamyshchay River valley, 41.908°N 48.233°E, 29.VI 2018, 1♀ (YuA, KF, VL, MM, MP) [MMC]. *Cyprus: Paphos, near Pittokopos vill., 34.981°N 32.404°E, 24.V 2018, 2♂ (MM) [MMC].

NOTE. This species is newly recorded from Russia and Cyprus.

Family Crabronidae

***Harpactus tauricus* Radoszkowski, 1884**

Harpactus tauricus Radoszkowski, 1884: 27, ♀. Type locality: Crimea. – Nemkov, 1996 (Crimea, Volgograd Prov.).

MATERIAL EXAMINED. **Russia**: *Dagestan, 22 km SW Terekli-Mekteb, 44.043133°N 45.648792°E, 22.VI 2018, 9♀ (YuA, KF, VL, MM, MP) [MMC]. **Azerbaijan**: Nakhichevan AR: Julfa, Gazanchi, 39°13'N 45°41'E, 1300 m, 15.VI 2019, 1♂ (MP, Aliyev, Maharramov) [MMC]; Nakhichevan, 39°13'N 45°24'E, 905 m, 17–18.VI 2019, 1♀ (MP, Aliyev, Maharramov) [MMC].

NOTE. This species was known in Russia in Crimea and Volgograd Prov. and newly recorded from Dagestan. Females from Dagestan was collected on the trunk of *Ulmus* spp.

***Larra carbonaria* (F. Smith, 1858)**

Larrada carbonaria F. Smith, 1858: 102, ♀. Type locality: Singapore.

MATERIAL EXAMINED. ***Russia**: Primorskiy Terr., Sikhote-Alin Nature Reserve, 15 km SSW Terney, 6–8.VIII 2012, 1♂ (VL) [MMC].

NOTE. This species is newly recorded from Russia.

***Plenoculus murgabensis* (Gussakovskij, 1928)**

Figs 1–5

Ptygosphex murgabensis Gussakovskij, 1928: 19, ♀. Syntypes, ♀: Turkmenistan, Imam Baba, now Imeni Chapayeva vill. (36.718°N 62.457°E) [ZISP], examined.

TYPE MATERIAL. **Turkmenistan**: Lectotype (designated here), ♀: "18-VI 25 Имам-Баба / В Гуссаковский [handwritten by V. Gussakovskij] // *Ptygosphex / murgabensis* n sp [handwritten by V. Gussakovskij] / V. Gusakovsky leg // Lectotype ♀ / *Ptygosphex murgabensis* / Gussakovskij, 1928 / design. Mokrousov, 2018" [ZISP]. Paralectotype, 1♀ with the same label [ZISP]. OTHER MATERIAL. **Russia**: *Kalmykiya, Davsna sands, 20 km E Khulhuta, 46.292°N 46.672°E, 16.VI 2018, 1♂ (MM) [MMC]; Astrakhan Prov.; near Volzhskiy, 46.965°N 47.53°E, 8.VII 2017, 1♀ (MM), [MMC]; 11 km N Malyy Aral, 46.7649°N 48.4936°E, 26.V 2019, 1♀, 4♂ (MM) [MMC]. **Turkmenistan**: Kirpili, 100 km NE Serdar (former Kyzyl-Arvat), 13.V 1953, 1♀ (E. Ahrens) [ZISP]. Repetek, 25–27.IV

1991, 1♂ (V.I. Tobias) [ZISP]. ***Uzbekistan**: Kashkadarya Prov., Sundukli desert, 38.962441°N 64.540643°E, 16, 21.V 2015, 8♀, 1♂ (MM) [MMC]. **Tajikistan**: 15 km SW Dusti (37.233°N 68.581°E), 16.VI 1975, 2♀ (Yu.A. Pesenko) [ZISP]. **Kazakhstan**: Syrdaria Prov., Karatau Mt., near Djulek. (Karataugeb. bei Djulek, Balamurun) (44.4°N 66.833°E), no date (Koshantschikow), 1♀ [ZISP].

NOTE. First metasomal tergum of lectotype is deformed. This species was known in Russia from Astrakhan Prov. and newly recorded from Kalmykia and Uzbekistan.

***Prosopigastra fumipennis* Gussakovskij, 1952**

Prosopigastra fumipennis Gussakovskij, 1952: 252, ♀, ♂. Lectotype, ♀, designated by Pulawski, 1979: 104: Tajikistan, Koy-Pyaz-Tau, Mountains near Kabadian [ZISP], examined.

MATERIAL EXAMINED. ***Russia**: Astrakhan Prov.: near Volzhski, 46.965°N 47.53°E, 27.V 2016, 2♂ (MM) [MMC]; near Lapas, 46.976°N 47.846°E, 7.VI 2016, 2♂ (MM) [MMC]; Dosang, 46.911°N 47.926°E, 6.VI 2016, 1♂ (MM) [MMC]. **Uzbekistan**: Surkhandarya Prov., Termez, 3 km NE Utchkysyl, 37.365460°N 67.284242°E, 07.V 2015, 2♂ (MM, MP, Samartsev) [MMC].

NOTE. This species is newly recorded from Russia. Misidentified as *P. latifrons* Gussakovskij, 1933 (Mokrousov *et al.*, 2016; Antropov, 2017) which should be excluded from Russian fauna.

***Trypoxylon rubiginosum* Gussakovskij, 1936**

Trypoxylon rubiginosum Gussakovskij, 1936: 662, ♀. Lectotype, ♀, designated by Antropov, 1989: 55: Russia, Sochi [ZISP], examined.

MATERIAL EXAMINED. **Russia:** *Dagestan: Samur Reserve, 41.8667°N 48.5565°E, 03.VII 2018, 2♀ (KF, MM) [MMC]; 4 km SW Derbent, near Dzhalgan, 42.02587°N 48.25647°E, 07.VIII 2018, 2♀, 1♂ (MM) [MMC].

NOTE. This species was known in Russia from Crimea and Krasnodar Terr. and newly recorded from Dagestan.

***Mimesa grandii* Maidl, 1933**

Mimesa grandii Maidl, 1933: 5, ♀. Holotype, ♀: Italy, Toscana, Livorno, San Vincenzo [Naturhistorisches Museum, Wien, Austria].

MATERIAL EXAMINED. **Russia:** *Dagestan: Derbent, 42.053085°N 48.273913°E, 05.VII 2018, 1♀ (MM) [MMC]; near Kufa, 6 km NW Rutul, 1500 m, 41.5651°N 47.362029°E, 30.VI–1.VII 2018, 1♀, 2♂ (MM) [MMC].

NOTE. This species was known in Russia from Rostov Prov., and newly recorded from Dagestan.



Figs 6–8. *Pseudoscolia ishkovi* Kazenas, ♂, Dagestan; 6 – habitus; 7 – head, frontal view; 8 – metasoma, dorsal view.

***Pseudoscolia ishkovi* Kazenas, 1994**

Figs 6–8

Pseudoscolia ishkovi Kazenas, 1994: 34, ♂. Holotype, ♂: Kazakhstan, Ili River valley, near Bakanas [ZISP], examined.

MATERIAL EXAMINED. ***Russia:** Dagestan, Kizlyar Distr., 7 km NW Staroterechnoe, 43.904303°N 47.397925°E, 20.VI 2018, 1♂ (YuA, KF, VL, MM, MP) [MMC].

NOTE. This species is newly recorded from Dagestan. The specimen from Dagestan differs from the holotype by less developed light coloration of metasoma.

ACKNOWLEDGEMENTS

We are grateful to S.A. Belokobylskij (Zoological Institute, St. Petersburg) and A.V. Antropov (Zoological Museum of Moscow State University), curators of the Hymenoptera collections, for the loaned material, A.S. Lelej, V.M. Loktionov and M.Yu. Proshchalykin (Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok), for the assistance in the preparation of publication. Special thanks to G.S. Dzhamirzoev (Dagestan Nature Reserve, Makhachkala), for help in field survey. The work was partly supported by the Russian Foundation for Basic Research (No17-04-00259 and No18-54-00011_Бел_а).

REFERENCES

- Antropov, A.V. 1989. To the knowledge of the digger wasps of the tribe Trypoxylini (Hymenoptera, Sphecidae, Larrinae) of the Palearctic fauna. *Byulleten' Moskovskogo Obshchestva Ispytateley Prirody. Otdel Biologicheskii*, 94: 55–58.
- Antropov, A.V. 2017. Subfamily Crabronidae. P. 225–245. In: Lelej, A.S., Proshchalykin, M.Yu. & Loktionov, V.M. (Eds.). *Annotated catalogue of the Hymenoptera of Russia. Volume 1. Symphyta and Apocrita: Aculeata*. Russkaya kollektsia, St Petersburg. (*Proceedings of the Zoological Institute RAS*, Supplement 6), 475 p.
- Costa, A. 1858. Sfecidei. *Fauna del Regno di Napoli ossia Enumerazione di tutti gli Animali che abitano le diverse Regioni di questo Regno e le Acque che le bagnano e Descrizione de 'nuovi o poco esattamente conosciuti con Figure ricevute de Originali viventi e dipinte al naturale. Imenotteri Aculeati*. Gaetano Sautto, Napoli, 1–28, pls. I–III.
- Danilov, Yu.N. 2017. Family Sphecidae. P. 212–216. In: Lelej, A.S., Proshchalykin, M.Yu. & Loktionov, V.M. (Eds.). *Annotated catalogue of the Hymenoptera of Russia. Volume 1. Symphyta and Apocrita: Aculeata*. Russkaya kollektsia, St Petersburg. (*Proceedings of the Zoological Institute RAS*, Supplement 6), 475 p.
- Danilov, Yu.N. & Mokrousov, M.V. 2017. Subfamily Philantinae. P. 252–256. In: Lelej, A.S., Proshchalykin, M.Yu. & Loktionov, V.M. (Eds.). *Annotated catalogue of the Hymenoptera of Russia. Volume 1. Symphyta and Apocrita: Aculeata*. Russkaya kollektsia, St Petersburg. (*Proceedings of the Zoological Institute RAS*, Supplement 6), 475 p.
- Gussakovskij, V.V. 1928. New species of Sphecidae from Transcaspia and Khiva. *Izvestiya Kursov Prikladnoy Zoologii i Fitopatologii*, 4: 3–19.
- Gussakovskij, V.V. 1935. Sphecodea und Vespodea von Tadjikistan. *Trudy Tadzhijskoy Bazy Akademii Nauk SSSR*, 5: 409–467. [In Russian]
- Gussakovskij, V.V. 1936. Les espèces paléarctiques du genre *Trypoxylon* Latr. (Hymenoptera, Sphecidae). *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR*, 3: 639–667. [In Russian]
- Gussakovskij, V.V. 1952. New and little known species of Psammocharidae and Sphecidae of western Tajikistan. *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR*, 10: 199–288. [In Russian]
- Illiger, K. 1807. *Fauna Etrusca sistens Insecta quae in provinciis Florentina et Pisana praesertim collegit Petrus Rossius*, 2. Helmstadii. I–VI, 1–511, pls. I–IX.
- Kazenas, V.L. 1994. New species of the genus *Pseudoscolia* Radoszkowski (Hymenoptera, Sphecidae) from Kazakhstan. *Izvestiya Natsionalnoy Akademii Nauk Respubliki Kazakhstan. Seriya Biologicheskaya*, 1993: 29–36. [In Russian]
- Lelej, A.S., Mokrousov, M.V. 2017. The types of Scolidae (Hymenoptera), described by Eduard Eversmann, with some taxonomic notes and checklist of Russian Scolidae. *Far Eastern Entomologist*, 340: 1–17. DOI: <https://doi.org/10.25221/fee.340.1>

- Maidl, F. 1933. Eine neue *Mimesa* (Hymenoptera, Sphecidae) aus Italien. *Bollettino del Laboratorio di Entomologia del R. Istituto Superiore Agrario di Bologna*, 6: 5–6.
- Mokrousov, M.V. 2017a. On the synonymy of two digger wasps (Hymenoptera: Sphecidae, Crabronidae) from the Oriental and Palearctic regions. *Far Eastern Entomologist*, 328: 35–36.
- Mokrousov, M.V. 2017b. New and little-known crabronid wasps of the subfamily Philanthinae (Hymenoptera: Crabronidae) from Russia. *Far Eastern Entomologist*, 335: 12–19.
- Mokrousov, M.V. 2017c. To the knowledge of digger wasps of subfamily Pemphredoninae (Hymenoptera: Crabronidae) of Russia. *Far Eastern Entomologist*, 337: 1–16. DOI: <https://doi.org/10.25221/fee.337.1>
- Mokrousov, M.V. 2017d. Subfamily Pemphredoninae. P. 225–245. In: Lelej, A.S., Proshchalykin, M.Yu. & Loktionov, V.M. (Eds.). *Annotated catalogue of the Hymenoptera of Russia. Volume 1. Symphyta and Apocrita: Aculeata*. Russkaya kollektsia, St Petersburg. (Proceedings of the Zoological Institute RAS, Supplement 6), 475 p.
- Mokrousov, M.V., Lelej, A.S., Gorbatsky, V.V. 2018. The types of described by Eduard Eversmann Tiphidae and Sierolomorphidae (Hymenoptera) with taxonomic notes. *Far Eastern Entomologist*, 349: 11–16. DOI: <https://doi.org/10.25221/fee.349.2>
- Mokrousov, M.V., Shlyakhtenok, A.S. & Grebennikov, K.A. 2016. New and little-known crabronid wasps (Hymenoptera: Crabronidae) from Russia. *Far Eastern Entomologist*, 325: 18–32.
- Nemkov, P.G. 1996. Digger wasps of the tribe Gorytini (Hymenoptera, Sphecidae) in the fauna of Russia and neighbouring countries. Genus *Harpactus* Shuckard. *Zoologicheskii Zhurnal*, 75: 1204–1213.
- Nemkov, P.G. 2017. Subfamily Bembicinae. P. 225–245. In: Lelej, A.S., Proshchalykin, M.Yu. & Loktionov, V.M. (Eds.). *Annotated catalogue of the Hymenoptera of Russia. Volume 1. Symphyta and Apocrita: Aculeata*. Russkaya kollektsia, St Petersburg. (Proceedings of the Zoological Institute RAS, Supplement 6), 475 p.
- Pulawski, W.J. 1979. A revision of the World *Prosopigastra* Costa (Hymenoptera, Sphecidae). *Polskie Pismo Entomologiczne*, 49: 3–134.
- Pulawski, W.J. 2019. Catalog of Sphecidae sensu lato. Available <https://www.calacademy.org/scientists/projects/catalog-of-sphecidae> (Accessed 30 July 2019).
- Radoszkowski, O. 1884. Etudes hyménoptérologique. *Horae Societatis Entomologicae Rossicae*, 18: 23–29.
- Smith, F. 1858. Catalogue of the hymenopterous insects collected at Sarawak, Borneo; Mount Ophir, Malacca; and at Singapore, by A.R. Wallace. *Journal of the Proceedings of the Linnean Society, Zoology*, 2: 89–130.